Immunize Utah

Volume 3, Issue 2 | Utah Department of Health Immunization Program | Spring/Summer 2003

Chickenpox Outbreak in Two Utah Elementary Schools: Vaccination Worked!

Caroline E. Green, CHES, BSN
School Nurse Consultant
Utah Department of Health

Maryam B. Haddad, MSN, MPH
Epidemic Intelligence Service Officer
CDC / Utah Department of Health

Chickenpox is usually a mild self-limited illness but can have serious consequences. Before the varicella (chickenpox) vaccine became available in the United States in 1995, chickenpox caused 11,000 hospitalizations and 100 deaths each year. The majority of these deaths were in healthy children and adults without immunocompromising conditions that might have predicted a poor outcome.

The varicella vaccine, called VARIVAX™ in the United States, is supposed to be 71%–100% effective in protecting against any chickenpox and 95%–100% effective against moderate or severe forms. (CDC defines moderate as >50 lesions and severe as >500 lesions or with complications.) So it is not unexpected that some individuals who have been vaccinated will occasionally develop a form of chickenpox—but the illness is expected to be mild (<50 lesions) and without fever or other complications.

Inside this Issue

Whenever people with prior immunity–either from infection or via vaccination–are re-exposed to the varicella virus, they are thought to benefit from a "booster" antibody effect, even if they don't develop outward signs of illness. This may explain why in Japan, where the vaccine has been available since the 1970s, titers in vaccinated children were actually higher at 20 years post-vaccination than they were at 10 years post-vaccination.

The national Advisory Committee on Immunization Practices (ACIP), which is comprised of representatives including the American Academy of Pediatrics and the American Academy of Family Physicians, has recommended that states require children entering child care facilities and elementary schools receive the varicella vaccine or show evidence of varicella immunity. Starting the 2002/2003 school year, Utah requires that children without a reliable history of chickenpox receive the varicella vaccine prior to kindergarten entry.

In December 2002, two elementary schools in Utah reported that they were experiencing a high number of chickenpox cases. Several parents expressed alarm that the vaccine may not work. The school district asked the school nurses to work with the state and county health departments to study the outbreak and figure out whether vaccine failure was causing the outbreak.

(Continued on page 2)

(Continued from page 1)

Chickenpox Outbreak in Two Utah Elementary Schools: Vaccination Worked!

We sent a letter and a questionnaire home with every child (about 1500 total students) in the two schools. About 96% of parents returned the questionnaire detailing their children's recent and past chickenpox experiences. They also gave us permission to verify their child's vaccine records. In most cases, we were able to verify vaccinations from the school records, but in a few cases, we had to call health-care providers' offices for more information. (Thanks if you were one of the providers who helped us!) We then followed up by interviewing each parent whose child had chickenpox since starting the school year.

We learned that 83 school children had recently been sick with chickenpox. Most of those cases were in unvaccinated children. In fact, unvaccinated children, with no history of chickenpox illness, had a 27%–40% chance of getting sick during this outbreak. A few of these children who became ill had unfortunate complications, such as secondary bacterial infections resulting in scarring and a ruptured eardrum.

There were 26 "breakthrough" cases in children who had previously received the vaccine. Another 538 children who had been vaccinated never developed any illness. We initially thought the number of breakthrough cases was going to be higher, because many of the unvaccinated children's parents mistakenly believed their children had received the varicella vaccine. This misunderstanding occurred because parents of the older children knew their child was "up to date" on their vaccinations but didn't realize they did not received varicella vaccine and that varicella vaccination was a requirement only for kindergarten students. (Similarly, several parents assumed their children were vaccinated for hepatitis A.) We learned that it was important to look at vaccine records very carefully!

Thanks to the great response rate from parents, we were able to calculate the **vaccine effectiveness in each school as 87%**. That was how well the vaccine protected children from developing any form of chickenpox. **Vaccine effectiveness against moderate or severe illness was even better: 96%** overall.

The majority of cases occurred in the first and second grades. In the older grades, the majority of children had natural immunity from prior varicella illness. In the kindergarten, vaccine coverage was much higher (71% in one school and 90% in the other), and several kindergarten classes sailed through the outbreak without a single chickenpox case.

When we asked parents why they had not vaccinated their children, the number one reason was that the child's health-care provider had not offered the varicella vaccine. Some parents did not even know a vaccine was available. Some had learned about the vaccine when their younger children were vaccinated, but they did not realize that the vaccine is also effective for older children. In fact, the varicella vaccine is effective for anybody – children and adults – without a reliable history of infection. (Those 13 or older will need two doses.)

Primary infection with varicella can be particularly severe in older individuals, please remember to assess older children and adults for a history of chickenpox, and offer vaccination to those who are still susceptible.

Based on CDC recommendations, Utah's local health departments and the Utah Department of Health now encourages reporting of individual chickenpox cases (in both vaccinated and unvaccinated individuals); the next revision to the Communicable Disease Rule will incorporate this change. To report a case, please contact your local health department or call the statewide reporting number: 1-888-EPI-UTAH.

Kudos To Providers!

The Utah Immunization Program is proud to recognize outstanding efforts in immunizing Utah's children. We are pleased to recognize the following providers for rates shown during recent immunization (Clinic Assessment Software Application (CASA)) assessments:

For achieving the goal of immunizing 90% of two-year-olds with 4 DTaP, 3 Polio, 1 MMR, 3 Hib, & 3 Hep. B:

St. Mark's Family Medicine
Parkway Pediatrics

Outstanding achievements in immunizations goes to:

U of U Student Health Center
City Creek Pediatrics
Dixie Pediatrics

Pneumococcal Conjugate Vaccine Shortage Resolved

On April 30, 2003 the Centers of Disease Control and Prevention (CDC), and Wyeth Lederle Vaccines announced that the Pneumococcal Conjugate (PCV7) vaccine shortage has been resolved.

Based on the current and projected availability of vaccine the Advisory Committee on Immunization Practices (ACIP) has recommended a return to the full dosing schedule for PCV7.

A catch-up schedule is provided for children who are not completely vaccinated (Table). The highest priority for catch-up vaccination is to ensure that children <5 years of age at high risk for invasive pneumococcal disease because of medical conditions receive a complete series. Second priorities include vaccination of healthy children <24 months of age who have not received any doses of PCV7 vaccine and healthy children <12 months of age who have not yet received three doses.

Providers are encouraged to notify children in need of additional doses of PCV7 in order to make an appointment for vaccination.

If you have questions please call the Utah VFC Program (801) 538-9450.

Mark Your Calendars !

National Immunization Awareness Month — August

1st Annual Observance of National Adolescent Immunization Awareness Week — September 14 - 20

National Adult Immunization Awareness Week — October 12 - 18

2003 Immunization Registry Conference
Atlanta, GA — October 27 - 29

American Public Health Association Annual Meeting
San Francisco, CA — November 15-19

CDC Satellite Broadcasts & Webcasts

Immunization Update 2003 — August 21
For more information regarding this broadcast to go : http://www.phppo.cdc.gov/phtnonline

Adolescent Immunization Conference Satellite Broadcast — September 18
For more information regarding this broadcast contact Becky Ward at (801) 538-9450.

Continuing education credits are offered for each broadcast.

Age at Examination (months)	Previous PCV7 Vaccination History	Recommended Regimen
2-6	• 0 doses • 1 dose • 2 doses	• 3 doses 2 months apart, 4th dose at 12—15 months • 2 doses 2 months apart, 4th dose at 12-15 months • 1 dose, 4th dose at 12-15 months
7-11	• 0 doses • 1 or 2 doses	• 2 doses 2 months apart, 3rd dose at 12-15 months • 1 dose at 7-11 months, with a 2nd dose at 12-15 months (≥ 2 months apart)
12-23	• 0 doses • 1 dose before 12 months of age • 1 dose at ≥ 12 months of age • 2 doses before 12 months of age	• 2 doses ≥ 2 months apart • 2 doses ≥ 2 months apart • 1 dose ≥ 2 months after the most recent dose • 1 dose ≥ 2 months after the most recent dose
24-59 (Healthy children)	• Any incomplete schedule	• Consider 1 dose ≥ 2 months after the most recent dose
24-59 (High risk)	• < 3 doses • 3 doses	• 1 dose ≥ 2 months after the most recent dose and another dose ≥ 2 months later • 1 dose ≥ 2 months after the most recent dose

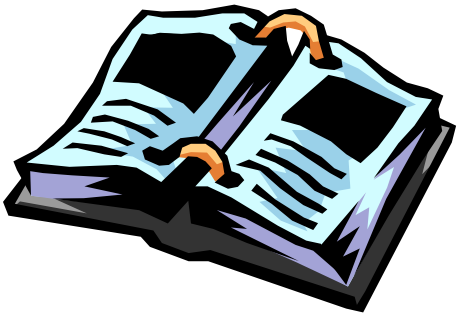
The "Catch-Up" Immunization Schedule for Children And Adolescents

What should you do when a child presents in your clinic after having missed one or more doses of vaccine? It can be difficult to determine when and how missed doses of vaccine should be given. The results of a recent study published in the May 2003 edition of *Pediatrics* demonstrated that childhood vaccine providers are largely unaware of the proper protocol when a child's immunization falls behind schedule. The new, easy-to-reference CDC's Catch-Up Immunization Schedule, approved by the Advisory Committee on Immunization Practices (ACIP), can guide your clinic staff in safely and appropriately bringing these children up-to-date.

The first cardinal rule of catch-up vaccinations is that ***you should never restart a vaccine series, regardless of the amount of time that has elapsed*** between doses. You should continue the series where it left off, giving remaining doses according to the minimum intervals reflected on the catch-up schedule.

All indicated vaccinations should be given when an opportunity presents, even if that means giving more than one vaccine at the same visit (in different syringes and at different sites). Don't further delay vaccination and leave a child at risk by giving only one shot when a child needs to catch up on three or four different vaccines—give them all.

Most vaccine series comprise a fixed number of doses that are required to complete the series. There are three doses, for example, in a routine childhood hepatitis B series, and four in a routine childhood (inactivated) polio series, regardless of the age at which the series is started, and regardless of the length of any prolonged intervals between doses.



Some vaccines, however, require a different number of doses if the series is delayed, or if an interval between doses is prolonged. Children may require less than the complete 4-dose series of Hib and pneumococcal conjugate vaccines if they begin the series late, or if they miss or delay doses. Adolescents or adults who receive varicella vaccine for the first time at or after age 13 years should get two doses to complete the series, while younger children only need one dose.

Complete and correct immunization is one of the most important elements in our fight against infectious disease. Delay in completion of the recommended schedule is one of the most common problems faced by childhood immunization providers, especially now that the recommended schedule has become more complex and confusing. The Catch-Up Schedule is a useful tool that can help you determine the correct timing and spacing of missed doses of routinely-recommended vaccines for children and adolescents aged four months to 18 years.

You can print or download the complete Catch-Up Schedule on the Internet at http://www.cdc.gov/nip/recs/child-schedule.htm#catchup or call the Utah Immunization Program at 801-538-9450.

(Reprinted from the Centers for Disease Control and Prevention's *Immunization Works* Monthly Update)

See enclosed Catch-up Schedule

AMERICAN ACADEMY OF PEDIATRICS PAPER REBUTS ARTICLE PURPORTING A CONNECTION BETWEEN THIMEROSAL AND AUTISM

In response to an article by Geier and Geier that has received media attention, the American Academy of Pediatrics (AAP) recently issued a paper, "Study Fails to Demonstrate a Connection Between Thimerosal and Autism."

The paper informs clinicians about numerous flaws in the article, which claims to show a correlation between thimerosal and autism. The AAP advises clinicians that the Geiers' article uses data from the Vaccine Adverse Event Reporting System (VAERS) inappropriately and contains abundant conceptual and scientific flaws, omissions of fact, inaccuracies, and misstatements.

Titled "Thimerosal in Childhood Vaccines, Neurodevelopment Disorders, and Heart Disease in the United States," the Geiers' article was published in the "Journal of American Physicians and Surgeons," Vol. 8, No. 1, Spring 2003.

To access a camera-ready (PDF) copy of the AAP paper, go to: http://www.cispimmunize.org/pro/pdf/Geiersummary.pdf

To access a camera-ready (PDF) copy of the Geiers' article, go to: http://www.jpands.org/vol8no1/geier.pdf

Give the birth dose . . .
Hepatitis B vaccine at birth saves lives

Martee Hawkins, RN
Perinatal Hepatitis B Coordinator
Utah Immunization Program

On October 17, 2001, the Advisory Committee on Immunization Practices (ACIP) voted to recommend a birth dose of hepatitis B vaccine for all U.S. infants. Only for infants of mothers whose hepatitis B surface antigen (HbsAg) test is assured to be negative does ACIP now approve giving the first dose as late as two months of age.

The Utah Department of Health Immunization Program urges all health professionals and hospitals to protect all infants from hepatitis B virus (HBV) infection by administering the first dose of hepatitis B vaccine to every infant at birth and no later than hospital discharge.

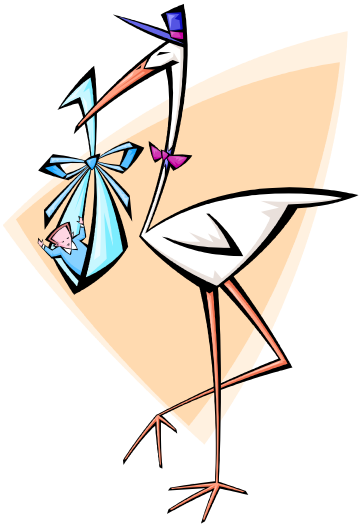
Approximately 19,000 women with chronic hepatitis B infection give birth in the United States each year. Ninety percent of Perinatal infections can be prevented by post exposure prophylaxis given within 12 hours of birth. Tragically, many babies are exposed to HBV at birth but do not receive appropriate post exposure prophylaxis.

Because thimerosal has been removed from all pediatric hepatitis B vaccines in the United States, concerns about thimerosal should no longer be an obstacle for practitioners in enacting a universal birth dose policy.

Why is such a policy necessary? Following are some of the ways infants who are not vaccinated at birth become infected:

- Failure to communicate HBsAg screening test results to or within the hospital
- Ordering the wrong hepatitis B screening test
- Misinterpreting or mistranscribing hepatitis B screening test results
- Not giving hepatitis B vaccine to infants born to mothers of unknown HBsAg status within 12 hours of birth
- Not giving both hepatitis B vaccine and HBIG to infants born to HBsAg positive mothers within 12 hours of birth
- Failure to retest high-risk women is later in pregnancy
- Infant is exposed to hepatitis B virus postnatally from another family member or caregiver. This occurs in two-thirds of the cases of childhood transmission.

While there are advantages to giving the first dose at a later well-baby visit, these are advantages of administrative convenience. The primary advantage of giving the first dose at birth is that **it saves lives.**



No matter how well health care providers think they are doing with HBsAg screening of all pregnant women, serious mistakes continue to occur; children are unnecessarily being exposed without the benefit of post exposure prophylaxis.

We must vaccinate every baby in the hospital prior to discharge regardless of the HBsAg status of the mother. Those providers who choose to use hepatitis B-containing combination vaccine, i.e., Comvax or Pediarix, may do so. However, since this vaccine cannot be given at birth, monovalent hepatitis B vaccine must be given at birth and then the hepatitis B vaccine series can be completed with three doses of the combination vaccine. Giving four doses of hepatitis B vaccine has been shown to be safe in several clinical studies.

Your support for providing a birth dose of hepatitis B vaccine to infants while still in the hospital will protect and save lives that are now being put at risk. To receive more information contact Martee Hawkins at (801) 538-9450.

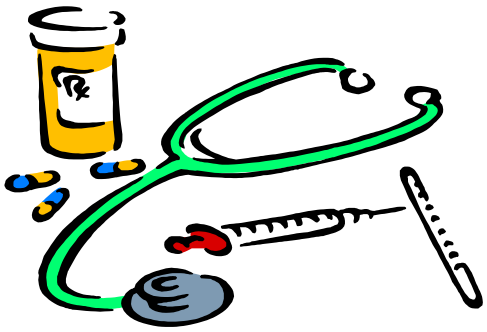
INFLUENZA, PNEUMONIA AND SEVERE ACUTE RESPIRATORY SYNDROME (SARS)

Carlie Shurtliff
Adult Immunization Coordinator
Utah Immunization Program

In the past few months many questions have arisen with regard to Severe Acute Respiratory Syndrome (SARS) and the effectiveness of the influenza and the pneumococcal polysaccharide vaccines in protecting against SARS. The Centers for Disease Control (CDC) has released the following statement addressing this issue:

> Influenza vaccination is the primary means of preventing influenza and its severe complications, including pneumonia, hospitalization, and death. Complications from influenza infection most often occur among persons ≥65 years of age, persons <65 years of age who have certain medical conditions, and children <2 years. Influenza vaccination is targeted toward these high-risk groups, all persons 50-64 years (because a high proportion of them have at least one high-risk condition), health care workers, and household contacts of high-risk persons.
>
> Influenza viruses are only one cause of influenza-like illness (fever, body aches, headaches). Even during the fall and winter influenza season, many other infectious agents (including SARS-associated coronavirus) can cause influenza-like illness, and most influenza-like illnesses are not caused by influenza viruses (or SARS-associated coronavirus). The influenza vaccine can prevent 70-90% of influenza-like illnesses caused by influenza viruses, but does not prevent influenza-like illness caused by infectious agents other than influenza viruses.

Although SARS is associated with pneumonia-like symptoms, the pneumococcal polysaccharide vaccine (PPV) also can not provide protection against the SARS coronavirus. The pneumococcal polysaccharide vaccine protects against 23 of the most common types of *Streptococcus pneumoniae* bacteria, which are responsible for causing greater than 90% of pneumococcal disease cases. Bacterial pneumonia accounts for up to 175,000 hospitalizations and 40,000 deaths each year in the United States. Most adults need only a single dose of the pneumococcal polysaccharide vaccine in their lifetime. It is recommended for all adults age 65 and older and is fully covered by Medicare Part B. The pneumococcal polysaccharide vaccine may be given any time during the year. However, the influenza and pneumococcal polysaccharide vaccines may be given at the same time during flu season.



SARS is a serious threat to those people who have been exposed to the SARS coronavirus. However, the likelihood of contracting influenza viruses and common types of bacterial pneumonia is much higher for adults in the U.S. than the likelihood of contracting SARS. There have been no deaths yet in the U.S. from SARS, but pneumonia and influenza together are the seventh leading cause of death in the U.S., and the fifth leading cause of death among older adults. In fact, each year in the United States, up to 60,000 adults die from vaccine-preventable diseases or their complications. **There is no vaccine currently that can prevent SARS, but the influenza and pneumonia vaccines are safe and effective in preventing flu and pneumonia.** All adults recommended to receive the pneumococcal polysaccharide and influenza vaccines and anyone wishing to avoid illness should protect themselves against these vaccine-preventable diseases by getting vaccinated.

References:
National Foundation for Infectious Diseases,
National Coalition for Adult Immunization
Centers for Disease Control and Prevention

Handle Vaccines With Care

REFRIGERATE vaccines immediately upon arrival.* Store varicella vaccine in the freezer. Do not freeze diluent. Store diluent at room temperature or in the refrigerator. Do not store vaccines in the refrigerator door, where temperatures fluctuate. Do not store food or drinks in the same refrigerator as vaccines.

PROTECT MMR from light at all times and keep vaccine cold.* Do not remove vaccine from the refrigerator until it is time to reconstitute and administer.

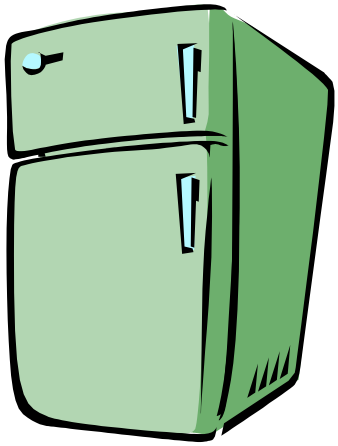
STORE AND ROTATE vaccine stock with the earliest expiration date in front of those with longer expiration dates. Always use short-dated vaccine first. Do not use expired vaccine.
Do not over-order.

SAFEGUARD the refrigerator. Make sure that the doors are shut tightly and that the unit stays plugged in. (Locking-type plug devices are available.)

POST "DO NOT UNPLUG" warning signs next to the wall socket and power plug so electricians or janitors do not accidentally unplug the refrigerator or freezer or turn off the circuit or electricity.

THERMOMETERS should be kept in both the refrigerator and freezer.

MAINTAIN proper temperatures in the refrigerator (35° F to 46° F or 2° to 8° C) and freezer (5° F or -15° C or colder).* If space allows, keep temperatures stable by placing large plastic containers of water in the refrigerator or ice packs in the freezer.



CHECK AND RECORD refrigerator and freezer temperatures twice a day—first thing in the morning and last thing at the end of the day—to confirm temperatures have stayed within recommended ranges. * If temperatures reach outside of recommended ranges (too warm or too cold), first refrigerate vaccines appropriately, then contact vaccine manufacturers to verify vaccine viability. For assistance, contact the Utah VFC Program.

Utah VFC

Utah Vaccines for Children

288 North 1460 West
P.O. Box 142001
Salt Lake City,UT 84114-2001
Phone: (801) 538-9450
Fax: (801) 538-9440
www.immunize-utah.org

***Refer to package insert for specific instructions on each vaccine. If you have questions about the condition of the vaccines at the time of delivery, first store them appropriately, then notify the manufacturer or call the Utah VFC Program, at (801) 538-9450, for assistance.**

Utah Department of Health
IMMUNIZATION PROGRAM
Immunize for healthy lives

P.O. Box 142001
288 North 1460 West
Salt Lake City, UT 84114-2001

Return Service Requested

Check out our web-site's new look!

www.immunize-utah.org

Did You Forget Something?

If you have received a VFC Vaccine Storage & Handling training packet and have not submitted the Certification and Checklist, we are waiting to hear from you. Please take the time to complete the training, fill out the *Vaccine Storage & handling Certification* and *Checklist for Safe Vaccine Handling and Storage* and fax them to (801) 538-9440.

The storage & handling packet is a valuable training tool for your office. The newly-produced video, included in the packet, is only 20 minutes and has many helpful tips for protecting your vaccine. Use it as a training guide for new employees or as a refresher course during staff meetings. All employees should know how to properly store and handle vaccines.

Vaccines are very costly (as you know) and can easily be damaged. It is very important to protect your vaccines in order to protect your patients and your clinic's budget.

If you have not yet received a VFC Vaccine Storage & Handling training packet, please call (801) 538-9450 or email your request to lindajenkins@utah.gov. Please include your name, clinic name, address, and VFC PIN number.